

ABSTRACT OF THE DISCLOSURE

Apparatus to provide effective removal of heat from a high power density device.

The apparatus has a heat spreader and a heat sink structure. The heat spreader is
5 divided into one or more chambers. Electromagnetic pumps are placed inside each
chamber in a configuration that facilitates easy circulation of liquid metal inside the
chamber. The liquid metal preferably is an alloy of gallium and indium that has high
electrical conductivity and high thermal conductivity. The liquid metal carries heat from a
localized area (over the high power density device) and distributes it over the entire
10 spreader. This results in a uniform distribution of heat on the base of the heat sink
structure and hence effective removal of heat by the heat sink structure.

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